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**To:** [Niemi, Cheryl \(ECY\)](#)  
**Subject:** Re: HHC information  
**Date:** Monday, July 30, 2012 9:47:44 AM

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Thanks for sending this follow-up information!

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 "Niemi, Cheryl (ECY)" ---07/24/2012 09:40:24 AM---Hi Todd, As discussed last week, here is information that tribes and others might find useful as the

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Subject: HHC information

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Hi Todd,

As discussed last week, here is information that tribes and others might find useful as they learn more about the development of human health-based water quality criteria (HHC) for surface waters in Washington. *Much of the information at the web sites listed below is very technical in nature.* As we move forward on this we can talk more about the technical and policy specifics of criteria development.

Cheryl

## **Water Quality Standards Rule-making processes**

The Ecology Water Quality Program's web site for water quality standards rule-making. As rule-making progresses new information will be added to this page: <http://www.ecy.wa.gov/programs/wq/swqs/RuleRev2011.html>.

## **General Information on HHC**

1. EPA's *Water Quality Standards Handbook*. This contains just about everything you need to know about water quality standards.  
<http://water.epa.gov/scitech/swguidance/standards/handbook/index.cfm>. The part that deals

specifically with criteria is Chapter 3. Note that this part has not been revised to reflect the EPA 2000 guidance (item 5. below) – you will notice this as you read the section on recommended fish consumption rates:

<http://water.epa.gov/scitech/swguidance/standards/handbook/chapter03.cfm#section13>.

2. *Washington's Water Quality Standards for Surface Water of the State of Washington, Chapter 173-201A WAC*. The statement on risk level is at 173-201A-240(6):

<https://fortress.wa.gov/ecy/publications/summarypages/0610091.html>.

3. National Toxics Rule – current version. 40CFR 131.36. This is the federal rule, issued by EPA in 1992 (and since updated in 1999 for PCBs), that currently applies to Washington. Column D contains the HHC broken down by consumption of (1) water and organisms, and (2) organisms only. In Washington, the “water and organisms” column applies to fresh waters, and the “organisms only” column applies to marine and estuarine waters. These are Washington’s current CWA criteria for regulatory purposes:

[http://edocket.access.gpo.gov/cfr\\_2010/julqtr/pdf/40cfr131.36.pdf](http://edocket.access.gpo.gov/cfr_2010/julqtr/pdf/40cfr131.36.pdf).

4. National Toxics Rule – December 22, 1992 version. This is the version that first established HHC for Washington.

The full preamble to the rule – which offers a response to comments on the previous version as well as an explanation of how the criteria were developed - is found in this publication. The preamble of this publication is a good example of the types of technical and policy discussions that can surround development of the HHC:

<http://water.epa.gov/lawsregs/rulesregs/ntr/ntr.cfm>.

5. EPA’s *Methodology for Deriving Ambient Water Quality Criteria for the Protection of Human Health (2000)*, also known as the “EPA 2000 guidance”:

[http://water.epa.gov/scitech/swguidance/standards/upload/2005\\_05\\_06\\_criteria\\_humanhealth\\_method\\_complete.pdf](http://water.epa.gov/scitech/swguidance/standards/upload/2005_05_06_criteria_humanhealth_method_complete.pdf).

EPA developed technical support documents to supplement the methodology – they are found at:

<http://water.epa.gov/scitech/swguidance/standards/criteria/health/methodology/index.cfm>.

6. EPA’s current recommended criteria list. Note that the list contains chemicals that are priority pollutants and chemicals that are non-priority pollutants. :

<http://water.epa.gov/scitech/swguidance/standards/criteria/current/index.cfm>.

7. EPA’s 2002 HHC calculation matrix (includes 2002 recommended criteria). The 1980 and 2000 equations used to calculate criteria are in this publication. The matrix is very useful when looking at the differences between equation inputs for pre-2000 and post-2000 nationally recommended criteria. Note that this 2002 list has since been updated to the current recommended criteria list in 6. above. There is **not** a revised version of the full HHC calculation matrix:

[http://water.epa.gov/scitech/swguidance/standards/upload/2002\\_12\\_30\\_criteria\\_wqctable\\_hh\\_calc\\_matrix.pdf](http://water.epa.gov/scitech/swguidance/standards/upload/2002_12_30_criteria_wqctable_hh_calc_matrix.pdf).

8. 15 additional EPA recommended HHC values published in 2003:

<http://water.epa.gov/scitech/swguidance/standards/criteria/health/15table-fs.cfm#how>.

9. EPA’s Integrated Risk Information System (IRIS). IRIS is a human health assessment program that evaluates information on health effects that may result from exposure to environmental contaminants. The IRIS database contains information on more than 550 chemical substances. The cancer potency factors (q1\*) and reference doses (RfD) used in developing HHC generally come from this database:

<http://www.epa.gov/IRIS/>.

## **Some chemical-specific EPA criteria documents that show the process used to develop EPA recommended criteria**

### **1. Non-carcinogen: Methylmercury**

Methylmercury Fish Tissue Criterion (new human health-based criterion). This was developed using the EPA 2000 guidance, and is a great example of exposure information that can be used in a relative source allocation:

<http://water.epa.gov/scitech/swguidance/standards/criteria/aqlife/pollutants/methylmercury/index.cfm>.

### **2. Carcinogen: DDT**

This is the 1980 criteria document for DDT. The criteria have since been revised based on newer inputs to the equation, but the document shows the types of considerations that go into making criteria for carcinogens.

[http://water.epa.gov/scitech/swguidance/standards/upload/2001\\_10\\_12\\_criteria\\_ambientwqc\\_ddt80.pdf](http://water.epa.gov/scitech/swguidance/standards/upload/2001_10_12_criteria_ambientwqc_ddt80.pdf)

## **Implementation of the standards (permitting)**

1. Ecology's *Water Quality Program Permit Writer's Manual*. This contains detailed information about the development of NPDES and state waste discharge permits in Washington. Chapters VI and VII contain information on water quality-based permitting, analytical methods, and development of human health-based criteria limits. Pages VI-33 through VI-41 discuss discharges to 303(d) listed waterbodies.

<https://fortress.wa.gov/ecy/publications/summarypages/92109.html>.

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